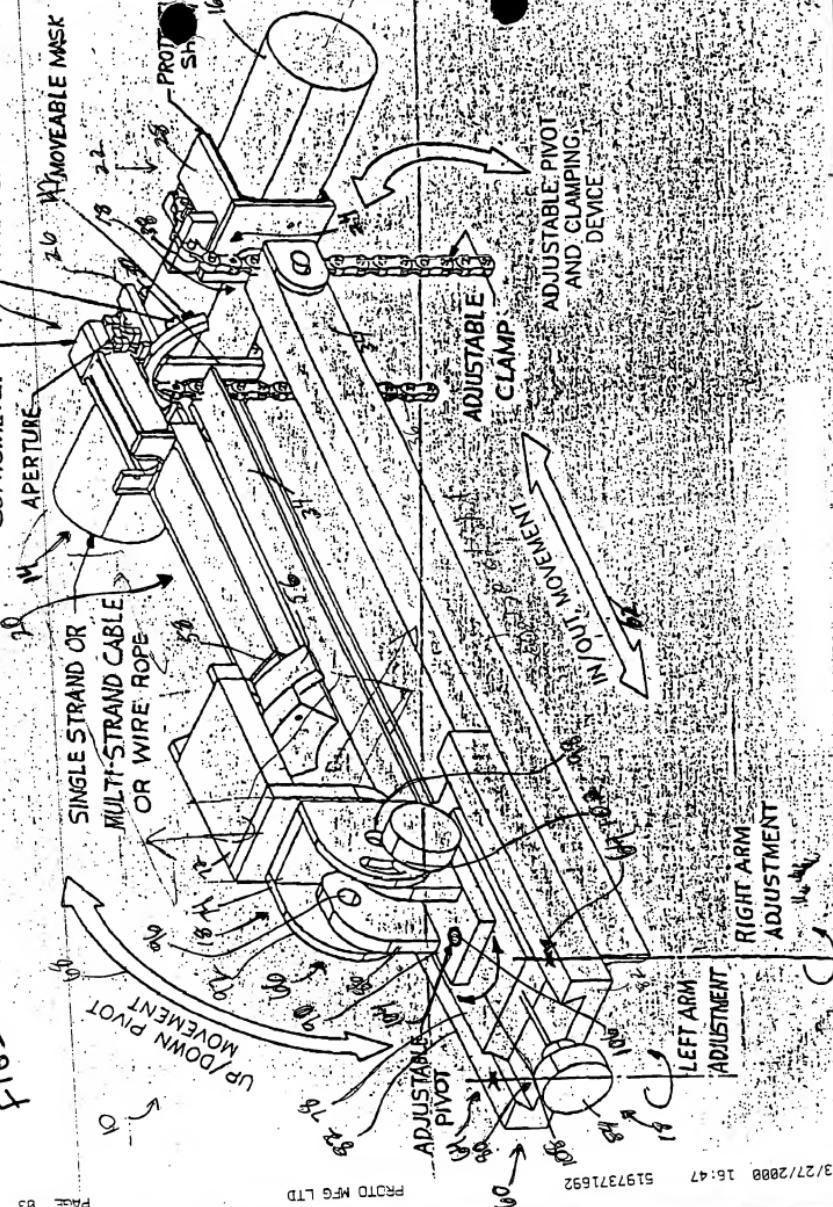
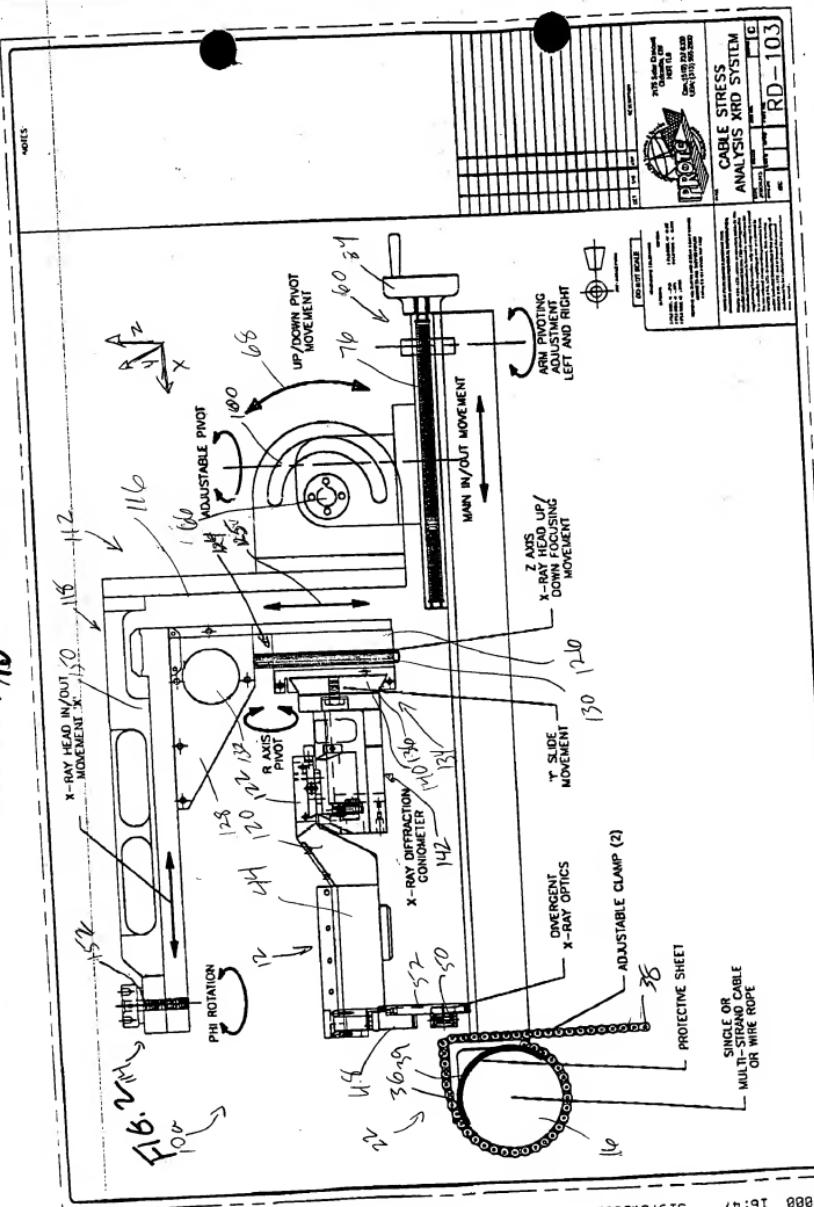


X-RAY DIFFRACTION
GONIOMETER



007000-9455560

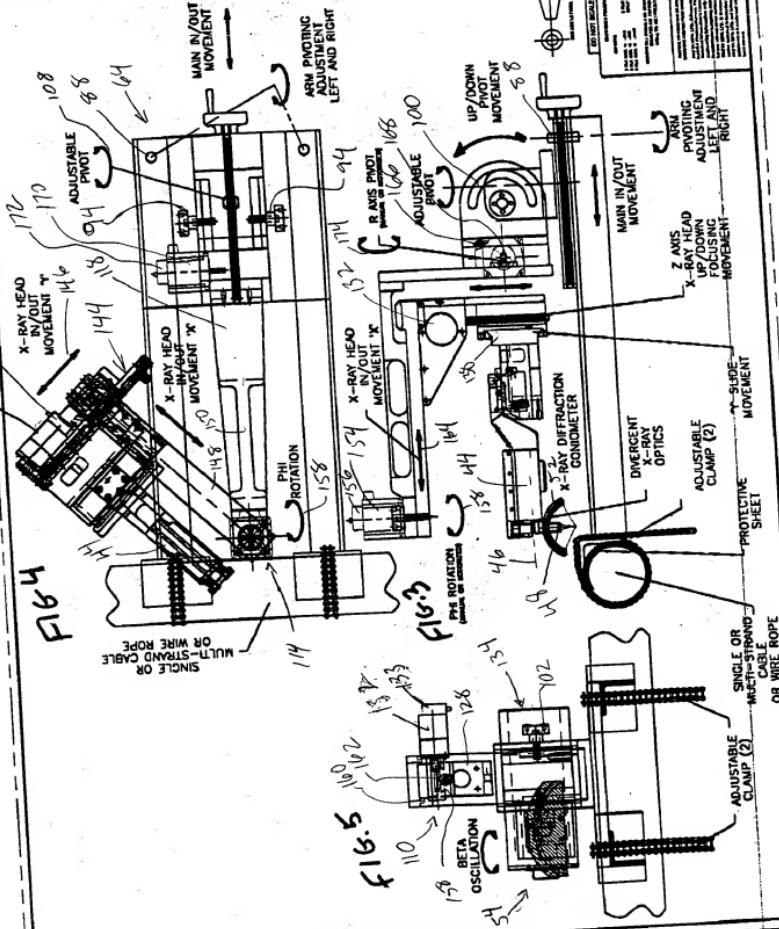
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HOMES

21 - ~~NOTEBOOK~~ ~~NOTEBOOK~~ ~~NOTEBOOK~~

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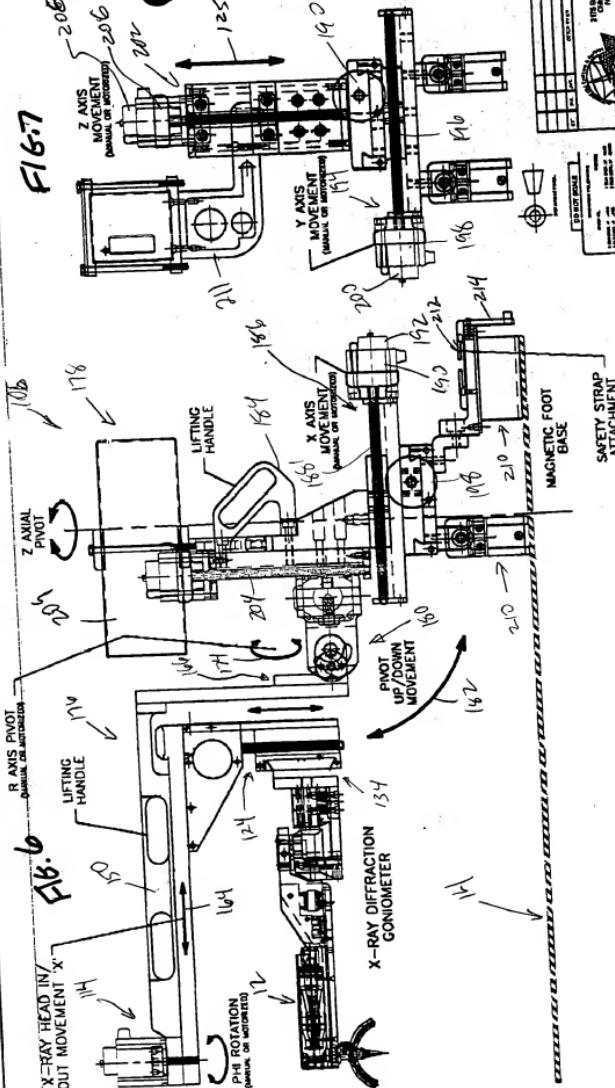


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R AXIS PIVOT
ORBITAL ORBITATION

R AXIS PIVOT parallel or anteroposterior

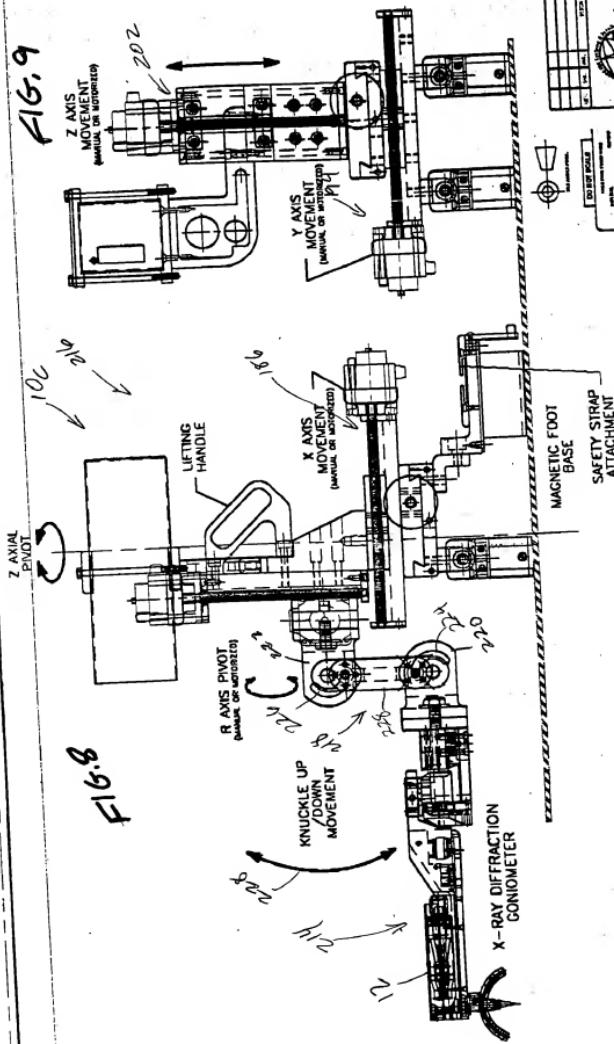
16.7



3933-3936 in 1933-1934

5/0

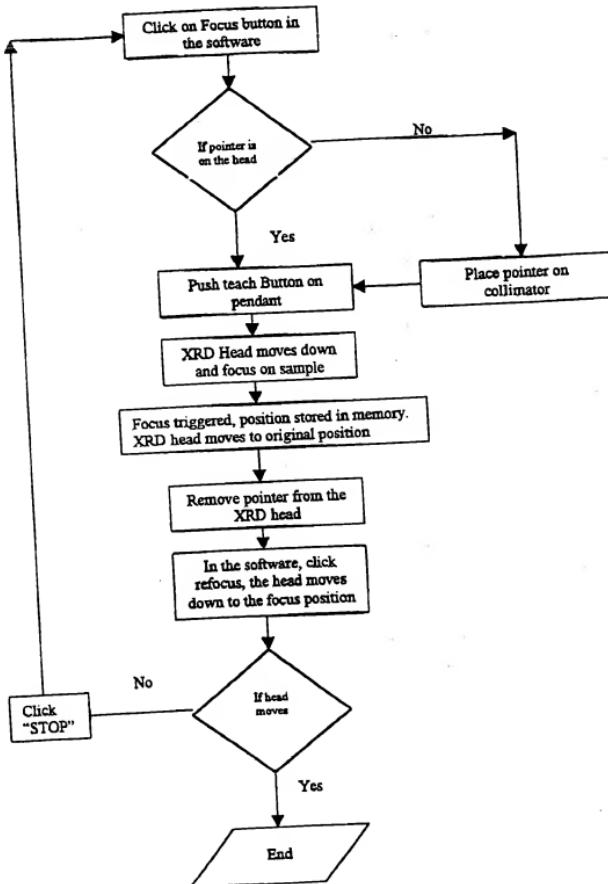
169



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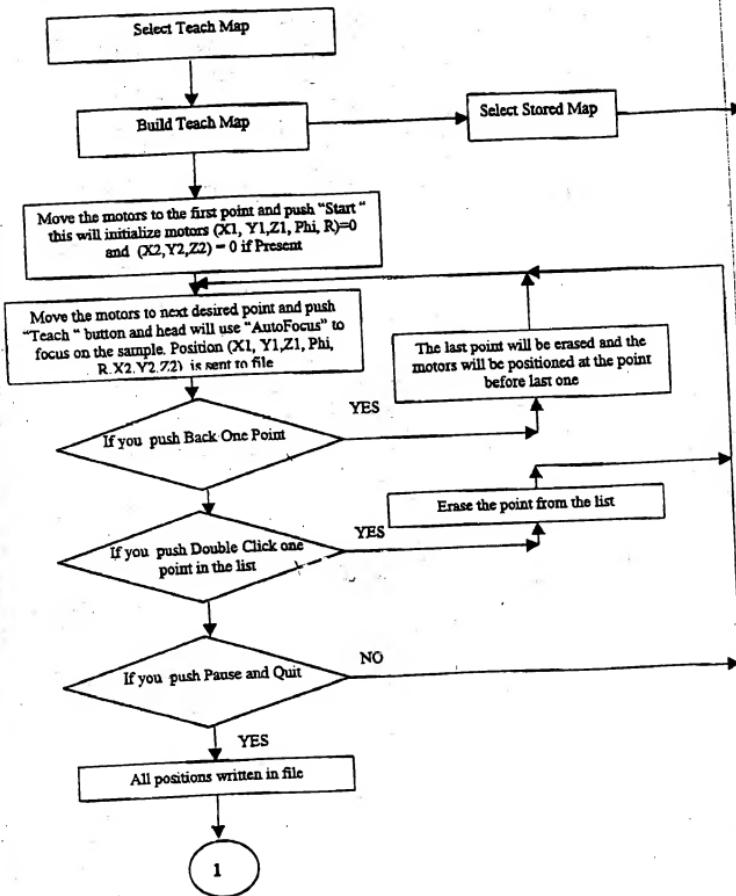
F16.10
C10
"AUTOFOCUS" flowchart in Proto XRDWin software

AUTOCO "AUTOCO" 50

FIG.11A

7/10

"TEACH- MAP" Flow -Chart

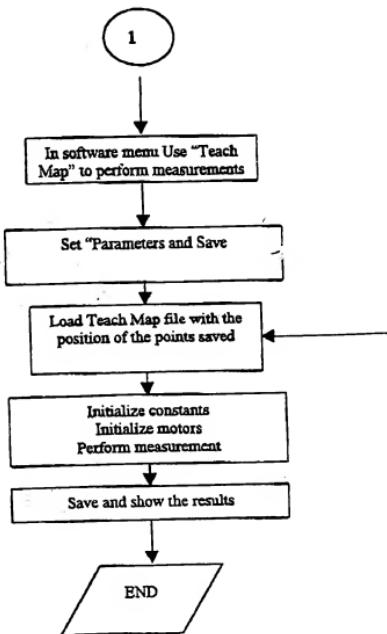


2

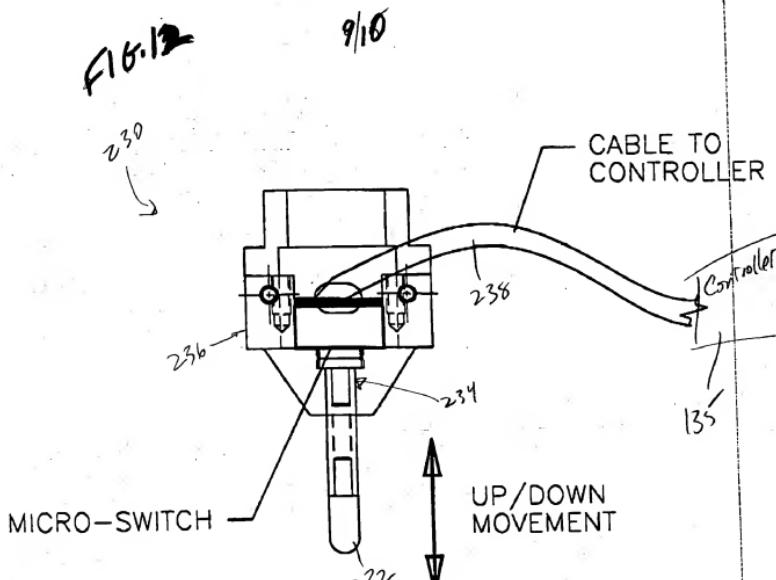
FIG. 11 B

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1



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DO NOT SCALE

MINIMUM TOLERANCE

INCHES	MILLIMETERS
1/8 INCH = .125	1/8 INCH = 3.175
1/16 INCH = .0625	1/16 INCH = 1.5625
1/32 INCH = .03125	1/32 INCH = .78125

REMOVE ALL SAWED AND GRAN SHARP EDGES
CHAMFER ALL TAPPED HOLES
LEAVING 1/16 INCH TAP SIZE

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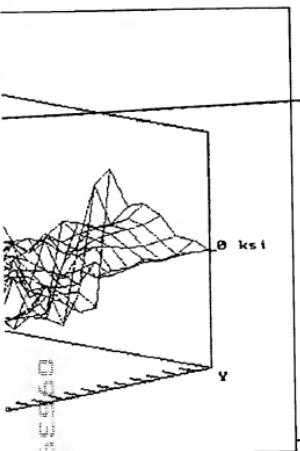
DET.	SHR.	AMT.	DESCRIPTION
			2175 Solar Crescent Ottawa, ON N2R 1L0
			Can: (619) 737-6330 USA: (313) 935-2900
FOCUS POINTER			
20000327	SCALE	REV. NO.	PRINT NO.
1/4 INCH	1:1		
100	000	000	A
JBC			
RD-103			

UNLEASH the Power of Automated Stress Mapping®

10/10

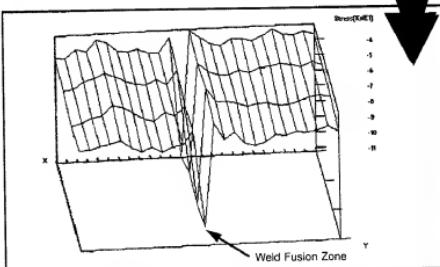
RESIDUAL STRESS TRACKING® (RST®)

Characterizing Residual Stress on the same component after different processes to solve premature fatigue failure.



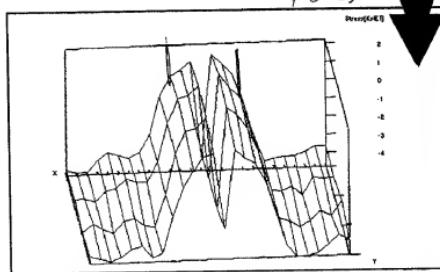
NOTE: Localized area of high tensile stresses in heat affected zone presents greater potential risk of crack initiation. This area may not have been detected without the application of automated stress mapping.

FIG 13A



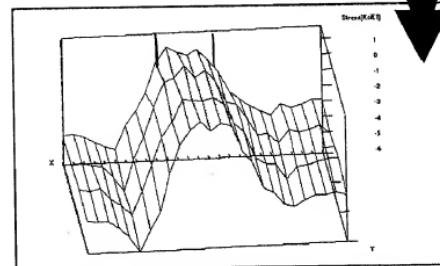
The residual stress map after resistance welding.

FIG 13B



The same weld after "heat treatment". NOTE: Introduction of tensile residual stresses sufficient to reduce fatigue life.

FIG 13C



The same weld after hand grinding further introducing counter productive tensile stresses.

Laser Welded Stainless Steel Pipe

The residual stress in a 316 stainless steel pipe that was laser welded was mapped through the weld and parent material. The concern was that the laser weld has created tensile residual stress levels near yield which could decrease the burst strength of the pipe while in service.

The residual stress map above reveals localized tensile residual stress areas in the center of the laser weld. If this section of pipe were placed in service, the tensile residual stress maxima already existing in the center of the weld would be increased even more due to the applied stress of the working pressure on the pipe, thus making this area highly susceptible to SCC. Some post weld residual stress management process would be recommended to introduce compressive surface stresses in the weld and HAZ.